DEGTEREV, P.F., inzh.

Stabilization of marks. Prom. stroi. 42 no.5:39-40 '65.
(MIRA 18:8)

DEGTEREV, V.V., kand. tekhn. nauk

Strength analysis of centrally compressed reinforced concrete elements. Trudy TSNIIS no.36:101-117 '60. (MIRA 13:9)
(Precast concrete—Testing) (Strains and stresses)

KRIVOSHEYEV, V.T.; GENDLER, S.L.; KRIVOSHEYEVA, M.G.; DEGTEREV, V.V.

Composition of rocks of the crystalline basement in the central part of the Kara Kum Platform. Izv.AN Turk.SSR.Ser.fiz.-tekh., khim.i geol. nauk no.3:113-115 '61. (MIRA 14:7)

1. TSentral'naya kompleksnaya tematicheskaya ekspeditsiya Upravleniya geologii i okhrany nedr pri Sovete Ministrov Turkmenskoy SSR.

(Kara Kum--Rocks, Crystalline and metamorphic)

DEGTEREV, V.V., kand.tekhn.nauk

Designing reinforced concrete sections for eccentriccompression.
Bet. i zhel.-bet. no. 3:140-141 Mr '61. (MIRA 14:5)
(Reinforced concrete construction)

TAVRIZOV, Vladimir Mikhaylovich; GHINSNOVICH, M.I., retsenzent; DEGTEHEV, Ye.S., retsenzent; ARGUTINSKIY, V.N., redaktor; LOHANOV, Ye.M., redaktor izdatel'stva; BEGICHEVA, M.N., tekhnicheskiy redaktor

[Blasting operations on waterways] Vzryvnye raboty na vodnykh putiakh. Moskva, Izd-vo "Rechnoi transport," 1956. 246 p.
(Blasting, Submarine) (MLRA 9:10)

DEGTEREV, Ye.S., gornyy inzh.

Using the Universal Decimal Classification for indexing scientific literature and documents on mining. Ugol' 39 no.3:73-74 My'64. (MIRA 17:5)

ALEKSANDROV, L.A.; AKSENOVA, Z.I.; ARTEM'YEV, S.P.; AFANAS'YEV, L.L.; BONSHTEYN, L.A.; BURKOV, M.S.; BUYANOV, V.A.; VELIKANOV, D.P.; VERKHOVSKIY, I.A.; GOBERMAN, I.M.; DAVIDOVICH, L.N.; DEGTEREVA, G.N.; ZEMSKOV, P.F.; KALABUKHOV, F.V.; KOLESNIK, P.A.; KOZHIN, A.P.; KRAMARENKO, G.V.; KRUZE, I.L.; KURSHEV, A.N.; OSTROVSKIY, N.B.; PASHINA, S.M.; SEMIKIN, N.V.; TAMANOV, A.T.; TIKHOMIROV, A.K.; ULITSKIY, P.S.; USHAKOV, B.P.; FILIPPOV, V.K.; CHERNYAVSKIY, L.M.; CHUDINOV, A.A.; SHUPLYAKOV, S.I.; TIKHOMIROV, N.N.

Petr Valerianovich Kaniovskii; obituary. Avt.transp. 37 no.4:57 Ap '59. (MIRA 13:6)
(Kaniovskii, Petr Valerianovich, 1881-1959)

Degtereva, M. Elements of a theory of analytic functions on the kernel of linear algebras. Doklady Akad. Nauk SSSR (N.S.) 60, 1491–1493 (1948). (Russian)

In an associative and distributive algebra of order n over the field of real numbers, with a commutative subalgebra θ of order $k \leq n$, there is presented a theory of analytic functions with the independent variable restricted to range over the kernel θ, generalizing the notion of an analytic function of a complex variable beyond the known generalization to commutative algebras. At a given point z of θ, right and left hand derivatives of a function $f(z)$ are given by

$$\overrightarrow{f'(z)} = \left(\sum_{s=1}^{n} \frac{\partial f_s}{\partial z_j} e_s\right) \frac{1}{e_j}, \qquad \overleftarrow{f'(z)} = \frac{1}{e_j} \sum_{s=1}^{n} \frac{\partial f_s}{\partial z_j} e_s,$$

$j = 1, 2, \cdots, k$. In a commutative algebra, these derivatives are equal. The author obtains generalizations of the Cauchy-Riemann equations as necessary and sufficient conditions for right and left hand derivatives, and establishes analogues of other function-theoretic results including the Cauchy integral theorem.

E. F. Beckenbach.

Source: Mathematical Reviews, Vol 10 No. 4

DEGTEREVA, M.

Degtereva, M. On a question in the construction of a theory of analytic functions in linear algebras. Doklady Akad. Nauk SSSR (N.S.) 61, 13–15 (1948). (Russian)

The effort to construct in a noncommutative linear algebra an analogue of the class of analytic functions of a complex variable, without restricting the range of the independent variable to the kernel θ of the algebra, leads to the necessity of starting with a more general definition of analyticity than is customary in the classical theory. One such definition is that of Hausdorff. A function $f(s)$ of the hypercomplex variable s in a linear algebra is said to be analytic in the sense of Hausdorff provided the differential

$$df=\sum_{n=1}^{n} df_n e_n=\sum_{n=1}^{n}\left(\sum_{j=1}^{n}\frac{\partial f_n}{\partial z_j}dz_j\right)e_n,$$

the existence of which is assumed, is a linear homogeneous function of the differential dz and therefore has the form $df=\sum_{n=1}^{n} u_n\,dz\,v_n$, where u_n and v_n are functions of the hypercomplex variable z. In the present paper it is shown that in any commutative algebra any function analytic in the sense of Hausdorff at a point is differentiable in the Cauchy-Riemann sense [see the preceding review] at the same point. Examples of generalizations of the Cauchy-Riemann equations in the direction of the Hausdorff definition are given for certain noncommutative algebras.

R. F. Buckenbach (Los Angeles, Calif.).

SMW

Source: Mathematical Reviews, Vol. 10 No. 4

3

Degtereva, M. P. On some properties of sedenions. Doklady Akad. Nauk SSSR (N.S.) 67, 965-967 (1949). (Russian)

The author continues the discussion [same Doklady (N.S.) 60, 1491–1493 (1948); 61, 13–15 (1948); these Rev. 10, 245] of analytic functions in an associative and distributive algebra of order n. For an algebra with basic multiplication table of the form $e_ie_j=\gamma_{ij}e_k\neq 0$, k depending on i and j, with $e_1=1$ and $e_i^2=1$ or ± 1, some elementary properties are briefly developed, and conditions for right and left hand derivatives, analogous to the Cauchy-Riemann equations, are given. Application is made in particular to the algebra of sedenions ($n=16$). *E. F. Beckenbach.*

Source: Mathematical Reviews, 1950 Vol 11 No. 2

ACC NR: AP6029065 SOURCE CODE: UR/0413/66/000/014/0121/0121

INVENTOR: Fomina, A. S.; Rayg, Kh. A.; Degtereva, Z. A.; Veski, R. E.

ORG: none

TITLE: Plant-growth stimulator. Class 45, No. 184063

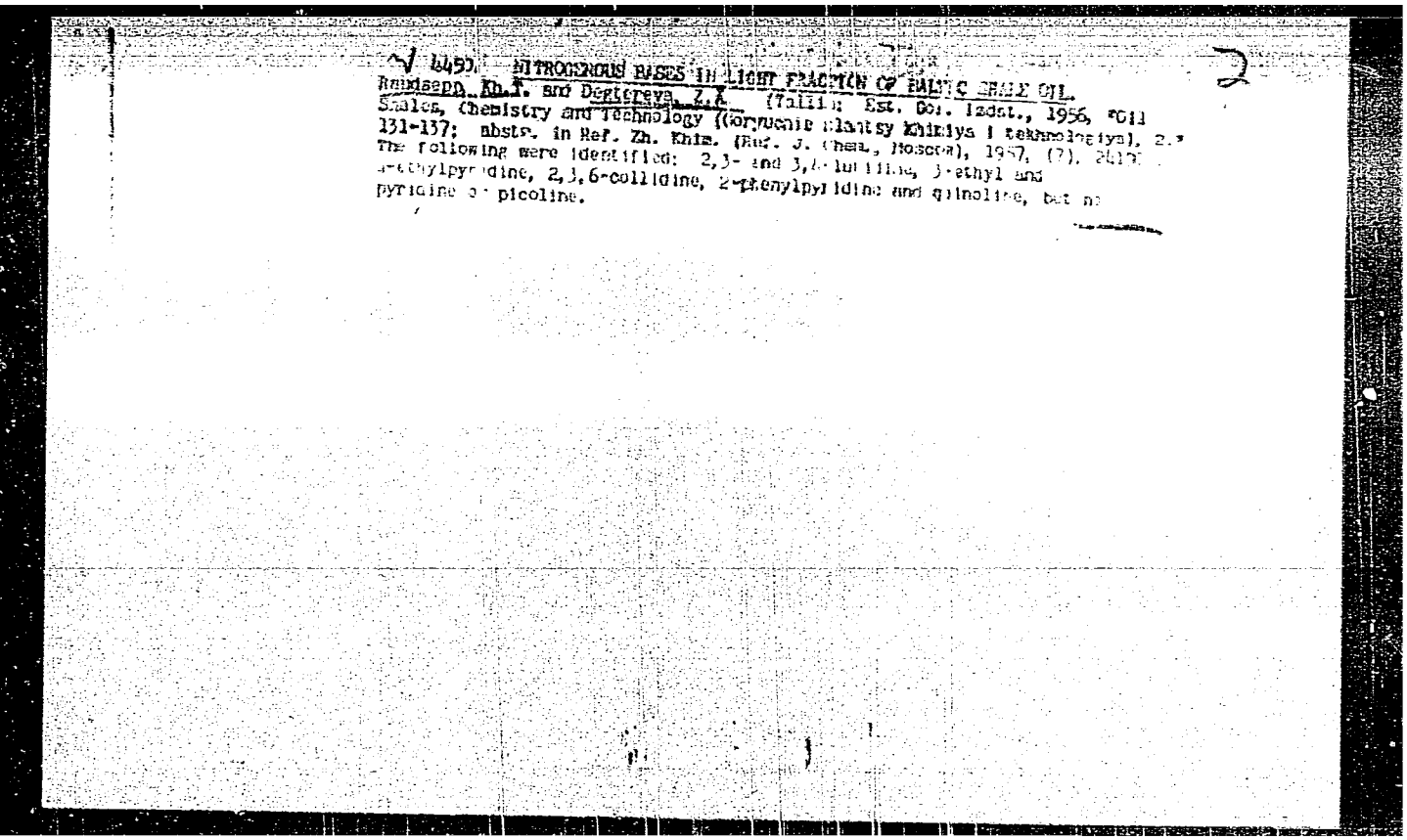
SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 121

TOPIC TAGS: plant growth regulator, polycarboxylic aliphatic acid, polycarboxylic aliphatic acid salt, aqueous solution, polycarboxylic acid, plant growth

ABSTRACT: It is known that polycarboxylic acids of the aliphatic series, which are the by-product in the preparation of saturated C_4—C_{10} dicarboxylic acids from kerogen of oil shales, are used as plant-growth stimulators. It is proposed to use the polycarboxylic acids in the form of aqueous solutions of their K, NH_4, and Ca salts in concentrations of 0.0001 to 0.1%, based on the dry salt. [WA-50; CBE No. 11]

SUB CODE: 07,06/ SUBM DATE: 25Feb65/

Card 1/1 UDC: 631.811.98



~ 4492. NITROGENOUS BASES IN LIGHT FRACTION OF BALTIC SHALE OIL.
Rannsepp, Kh.I. and Dertreva, Z.K. (Tallin Est. Gos. Issled., 1956, "Oil Shales, Chemistry and Technology (Goryuchie slantsy Khimiya i tekhnologiya), 2, 131-137; abstr. in Ref. Zh. Khim. (Ref. J. Chem., Moscow), 1957, (7), 24197. The following were identified: 2,3- and 3,4-lutidine, 3-ethyl and 4-ethylpyridine, 2,3,6-collidine, 2-phenylpyridine and quinoline, but no pyridine or picoline.

DEGTEREVA, Z. A.

ХИМИЧЕСКАЯ ПРИРОДА КЕРОГЕНА
ПРИБАЛТИЙСКОГО ГОРЮЧЕГО СЛАНЦА КУКЕРСИТА
И НОВЫЙ ПУТЬ ЕГО ИСПОЛЬЗОВАНИЯ

А. С. Фомина, Л. Н. Неёлов, З. А. Дегтерева

VIII Mendeleyev Congress for General and Applied Chemistry
Section of Chemistry and Chemical Technology of Fuels,
publ. by Acad. Sci. USSR, Moscow 1959

abstracts of reports scheduled to be presented at above mentioned congress,
Moscow, 19 March 1959.

5(3) SOV/23-59-2-7/8

AUTHORS: Degtereva, Z.A., and Fomina, A.S., Candidate of Technical Sciences

TITLE: Production of the Dibasic Acids C_4 - C_{10} from the Oil Shale Kukersite

PERIODICAL: Izvestiya Akademii nauk Estonskoy SSR, Seriya tekhnicheskikh i fiziko-matematicheskikh nauk, 1959, Nr 2, pp 123-136 (USSR)

ABSTRACT: The authors present data on the oxidation of kukersite kerogen into dibasic saturated acids using nitric acid of various concentrations, at different temperatures, intervals of time, pressures and quantities of oxidizer. Proceeding from the experimental data, the authors have worked out a system for the industrial treatment of kukersite shale kerogen containing 85-87% of organic matter. The yield of dibasic acids, under optimum conditions, is as follows: 1) 50-55% based on the kerogen using 99% nitric acid, at an expenditure of 4.5 tons of oxidizer per ton of a technically pure mixture of dibasic

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Production of the Dibasic Acids C_4 - C_{10} from the Oil Shale Kukersite

acids; 2) 40-43% based on kerogen using dilute acid (autoclave procedure) at an expenditure of 3.5 to 4.5 tons of oxidizer - 60% nitric acid. The production of dibasic acids from oil shale kukersite is profitable as shown by an estimate of expenses on raw and auxiliary materials. There are 9 tables, 4 diagrams and 16 references, 13 of which are Soviet, 1 French, and 2 English.

POBUL', L.Ya.; FOMINA, A.S.; DEGTEREVA, Z.A.

Analyzing dicarboxylic acid mixtures by the method of distributive chromatography on silica gel. Khim. i tekh. topl. i masel. 6 no.10: 55-59 O '61. (MIRA 14:11)

1. Institut khimii AN Estonskoy SSR.
(Acids, Fatty) (Chromatographic analysis)

FOMINA, Aleksandra Sergeyevna; POBUL . Lind.
DEGTEREVA, Zinaida Aleksandrovna; KIRRET, O.,red.;
SKVORTSOVA, A., red.

[Nature of the kerogen of Baltic oil shale kukersite and its chemical properties as raw material] Priroda kerogena Pribaltiiskogo goriuchego slantsa-kukersita i ego khimicheskie syr'evye kachestva. Tallinn, AN Estonskoi SSR, 1965. 212 p. (MIRA 18:8)

1. Chlen-korrespondent AN Estonskoy SSR (for Kirret).
2. Redaktorsko-izdatel'skiy sovet AN SSSR (for Skvortsova).

DEGTEV, A.

Bee Culture - Altai (Territory)

Profound and correct elucidation of work methods of leading apiculturists ("Bee culture on the collective farms of the Altai.") Pchelovodstvo 29 no. 3:58-59 Mr '52.

9. Monthly List of Russian Accessions, Library of Congress, July 1952 Uncl.

DEGTEV, G. F.

958. TRIALS OF A CERAMIC TUBULAR RECUPERATOR. Degtev, G.F. (Sbornik nauch. Trud. Dnepropetrovsk. Inzh-stroit. Inst. (Pap. Dnepropetrovsk Engng constr. Inst.), 1955, (1/2), 130-148; abstr. in Ref. Zh. Khim. (Ref. J. Chem., Moscow), 1956, (11), 34771). Trials showed that the refractories of the carborundum tubes and top covering permits their being heated to 1400°, so that air can be heated above 1000°C. Tests for gas-tightness showed that total air losses were 30%, 14% in the ceramic tubes and the remaining 16% through the chamber walls, which can be sealed with a steel case or refractory cement. The hydraulic resistance and coefficient of heat transfer of the recuperator were ascertained, and the following formula for heat transfer from the recuperator walls to the air is given for air speeds of 0.5 to 2.1 m/sec and temperatures of 600 to 1100°C, $Nu = 0.027\ Re^{0.903}$.

Degtev, G.F.

TITLE I BOOK EXPLOITATION SOV/3407

Akademiya nauk SSSR. Energeticheskiy institut im. G.M. Krzhizhanovskogo

Problemy energetiki; sbornik pamyati chlenkorra akademika G.M. Krzhizhanovskogo (Problems of Power Engineering; Collection of Articles Dedicated to Academician G.M. Krzhizhanovskiy) Moscow, 1959. 851 p. Errata slip inserted. 2,500 copies printed.

Eds. of Publishing House: A.D. Axtyukhin, P.V. Dubiny, F.I. Zubkov, and S.M. Morphas; Tech. Ed.: S.A. Fruzanova; Editorial Board: A.T. Pinter, Academician (deceased), V.I. Popkov (Resp. Ed.) Corresponding Member, Academy of Sciences USSR, V.I. Veyts, A.S. Predvoditelev, M.A. Styrikovich, K.F. Chekhunov, P.S. Bogdanov, Candidate of Technical Sciences, N.I. Ershov, Candidate of Technical Sciences, M.M. Lebedev, Candidate of Technical Sciences, and I.N. Sumbatov.

PURPOSE: This collection of articles is intended as a tribute to the memory of Academician G.M. Krzhizhanovskiy.

COVERAGE: The collection contains sixty articles by former students and coworkers of the deceased Academician. The articles deal with problems of a wide range of subjects in the field of power engineering: problems of the regional development of electrical and thermal power engineering, power engineering technology, and the physics of combustion. No personalities are mentioned. References are given after most articles.

S/182/60/000/011/013/016
A161/A029

AUTHORS: Degtev, G.F., Kharchenko, V.I.

TITLE: Recuperative Forging Shop Chamber Furnace for Nonoxidizing Heating

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960, No.11, pp.42-43

TEXT: The described furnace for heating stamping blanks has been designed by the Dnepropetrovskiy inzhenerno-stroitel'nyy institut (Dnepropetrovsk Construction Engineering Institute), Department of "Technology of Metals", for the Luganskiy zavod im. Parkhomenko (Luga Plant im. Parkhomenko) where it is now in operation. The nonoxidizing atmosphere in the work chamber is produced by incomplete combustion of natural gas mixed with 0.5 - 055% air. The furnace (Figure) has a work chamber (1) and a top chamber (2) for burning up incompletely burned gas from the work chamber reaching it through three ducts in the walls. From the top chamber smoke gas goes into two radiation recuperators, i.e., first into the air recuperator (4) and then into the gas recuperator (3). Air is heated to 550°C and gas to 450°C. Both recuperators are made of Х18Н9Т1 (Kh18N9T1) steel. After the gas recuperator the combustion products go

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Recuperative Forging Shop Chamber Furnace for Nonoxidizing Heating

into the stack having a temperature of 500°C. Trapping of outer air into the work chamber is prevented by overpressure of 0.5 mm water column; the pressure is controlled by the throttle gate (5) and an ejector in the chimney. Gas is thoroughly mixed with air in the two two-duct burners. The burner itself and the burner ducts in the furnace wall are 800 mm long and this distance is sufficient for combustion before the combustion products reach the work chamber. The air and gas supply is controlled by diaphragms. Measuring instruments are placed on a special board; throttle valves are provided for adjusting the air and gas ratio. The furnace atmosphere is checked periodically by a GTI-2 (VTI-2) gas analyzer; the temperature is measured by six thermocouples. Air is preheated to 450--500°C and gas to 370-420°C; the temperature in the work chamber is 1,300--1,330°C and in the top chamber 1,300-1,400°C. The work capacity of the furnace is 250 kg/hour. Ventilation and a water shield with evaporation cooling are provided at the work window for safety and convenience. The furnace can be controlled manually without automatic means and can be

S/182/60/000/011/013/016
A161/A029

Recuperative Forging Shop Chamber Furnace for Nonoxidizing Heating

automated. The work chamber temperature can be measured either with thermocouples or with a radiation pyrometer. The specific fuel consumption is about 50% lower than in chamber furnaces without recuperators. Heating without oxidation is possible to 600 - 1,250°C and the furnace is suitable for heating any steel for forging or stamping, as well as for heat treatment. There is 1 figure.

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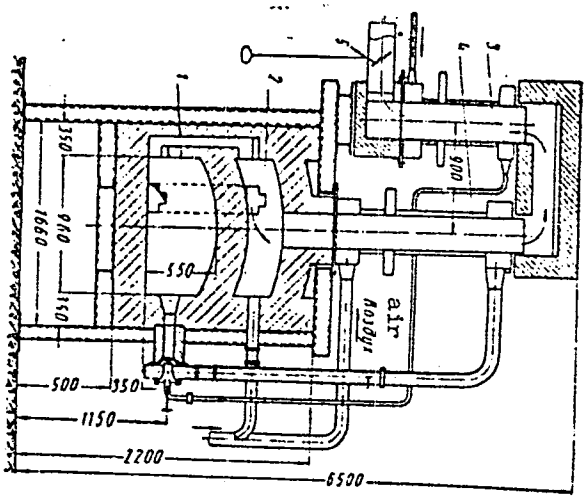
Recuperative Forging Shop Chamber Furnace for Nonoxidizing Heating

Fig. 1



Card 4/4

DEGTEV, G.F.

Doc Tech Sci - (diss) "Heat exchange in fueled heater equipment." /Moscow/, 1961. 34 pp with diagrams; (Academy of Sciences USSR, Power Scientific Research Inst imeni G. M. Krzhizhanovskiy); 200 copies; price not given; list of author's works on pp 33-34 (21 entries); (KL, 7-61 sup, 229)

DEGTEV, G.F.; KHARCHENKO, V.I.

Investigating radiation recuperators and two-conductor burners used in forge shops. Kuz.-shtam.proizv. 4 no.2:28-30 F '62. (MIRA 15:2)

(Furnace, Heating) (Heat regenerators)

MATVEYEV, O.R., inzh.; DEGTEV, G.F., kand.tekhn.nauk

Modernization of a forge box furnace. Mashinostroenie no.2:37-39 Mr-Ap '62. (MIRA 15:4)

1. Dnepropetrovskiy inzhenerno-stroitel'nyy institut.
(Furnaces, Heating--Technological innovations)

DEGTEV, G.F.; SAVICH, V.V.; SOROCHINSKIY, M.A.

Mechanized painting of metal articles. Mashinostroenie no.3:81-83 My-Je '62. (MIRA 15:7)

1. Dnepropetrovskiy inzhenerno-stroitel'nyy institut.
(Painting, Industrial--Equipment and supplies)

MATVEYEV, O.R.; DEGTEV, G.F.

Modernization of the chamber-type forging furnace. Kuz.-shtam. proizv. 4 no.3:40-43 Mr '62. (MIRA 15:3)
(Furnaces, Heating)

DEGTEV, G. F., kand. tekhn. nauk; KHARCHENKO, V. I., inzh.

Melting bronze in a gas furnace with a recuperator. Mashinostroenie no.5:50-51 S-O '62. (MIRA 16:1)

1. Dneprepetrovskiy inzhenerno-stroitel'nyy institut.

(Bronze—Metallurgy)

DEGTEV, G.F.; SAVICH, V.V.; SOROCHINSKIY, M.A.

Automatic painting and frying of parts. Mashinostroitel' no.6: 15-16 Je '62. (MIRA 16:5)
(Painting, Industrial--Equipment and supplies)

KHARCHENKO, V.I.; DEGTEV, G.F.

Gas furnace with controlled atmosphere for the melting of nonferrous alloys. Lit.proizv. no.7:35-36 Jl '62.
(MIRA 16:2)
(Nonferrous metals—Founding)
(Metallurgical furnaces—Protective atmospheres)

KHARCHENKO, V.I.; [redacted]

The gas fur[illegible] ere for the smelting of nonferrous [illegible]. Metallurgiia no.12:21 '62.

DEGTEV, G.F.; SAVICH, V.V.

Drying colored hardware through gas heating. Gaz. prom. 7 no.3: 33-35 '62. (MIRA 17:8)

DEGTEV, G.E., doktor tekhn. nauk; MATVEYEV, C.R., inzh.

Modernization of a heat-treating compartment furnace for its conversion to nonoxidation heating. Mashinostroenie no.6: 14-15 N-D '64 (MIRA 18:2)

KHARCHENKO, V.I.; DEGTEV, G.F.

Double-pipe burners used in nonoxidative heating. Gaz. prom. 9 no.1:25-27 '64. (MIRA 17:12)

L 34472-65 EWT(d)/EWT(l)/EWP(e)/EPA(s)-2/EWT(m)/EPF(c)/EWG(s)-2/EPF(n)-2/EWG(v)/EWA(d)/EPR/EPA(w)-2/EWP(j)/T/EWP(t)/EWP(k)/EPA(bb)-2/EWP(b)/EWA(h)/EWA(c)/EWA(l) Pc-4/Pab-10/Pe-5/Pq-4/Pf-4/Pr-4/Ps-4/Pt-10/Peb/Pu-4/Pw-4

ACCESSION NR: AP5003510 JD/WW/HW/RM/WH S/0182/65/000/001/0042/0045

108 B

AUTHOR: Matveyev, O. R.; Degtev, G. F.

TITLE: A study of some heat-resistant materials for manufacturing high temperature heat exchangers

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 1, 1965, 42-45

TOPIC TAGS: heat resistant material, heat resistant glass, quartz, heat resistant steel, concrete, pyroceram

ABSTRACT: In order to find materials suitable for making high temperature recovery units, an investigation was made of several heat resistant materials: calorized steel and cast iron, crystallized glass (pyroceram), quartz glass and heat resistant concrete. The samples used in the research were pipes with a diameter of 50 mm. In the case of calorized steel, cylinders and strips were studied in addition to pipes. The studies showed that the most promising metallic materials for manufacturing high temperature recovery units are thin-walled (3-4 mm) pipes made of low carbon steels which have been aluminized to a depth of 0.5-0.6 mm. In some cases it is also advisable to aluminize pipes made from heat resistant steels (preferably

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L 34472-65

ACCESSION NR: AP5003510 O

with a minimum chromium content). Aluminizing low carbon steel increases its heat resistance 30-40 times. This treatment increases the heat resistance of refractory steels by a factor of 10 (for 200 hours of use). Carbon steels can then be used for extended periods at temperatures up to 1000°C. The pyrocerams have a great future as non-metallic heat resistant materials. They have valuable heat properties, are inexpensive and are made from abundantly available materials. The pyroceram pipes which were studied are capable of long term operation at wall temperatures up to 1000°C. Recovery units made of pyroceram will be just about as compact as those made from metal because of a rather high heat transfer factor. In addition to this, the pyrocerams have controllable properties and there is no doubt that pyrocerams with still better thermal and physical characteristics will be created in the near future. Heat resistant concrete pipes made a poor showing. When heat resistant concretes can be made which are suitable for manufacturing thin walled parts, this material may compete with the pyrocerams. Orig. art. has: 2 figures, 2 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: MT, MM

NO REF SOV: 000 OTHER: 000

Card 2/2

DEGTEV, G.F.; KHARCHENKO, V.I.

Investigating certain controlled parameters of gas burners.
Gaz. prom. 10 no.1:39-44 '65. (MIRA 18:1)

AGISHEV, A.P.; BEREZHNOY, A.I.; DEGTEV, N.I.

Setting cement plugs into production columns. Gaz. prom. 6 no.3:4-8 '61. (MIRA 14:3)

(Gas wells)

BEREZHNOY, A.I.; DEGTEV, N.I.

Experimental study of the vacuum degassing of muds. Gaz. prom. 7 no.3:11-15 '62. (MIRA 17:8)

BEREZHNOY, Aleksandr Ivanovich; DEGTEV, Nikolay Ivanovich; PETROVA, Ye.A., ~~ved.~~ red.; YAKOVLEVA, Z.I., ~~tekhn.~~ red.

[Degasification of drilling fluids in drilling] Degazatsiia promyvochnykh rastvorov v burenii. Moskva, Gostoptekhizdat, 1963. 163 p. (MIRA 16:5)
(Oil well drilling fluids)

BEREZHNOY, A.I.; DEGTEV, N.I.

Monitoring the content of gas in drilling fluid. Trudy VNIIGAZ no.19/27:122-131 '64 (MIRA 17:8)

AGISHEV, A.P.; BEREZHNOY, A.I.; DEGTEV, N.I.; ZINKEVICH, A.I.

Vacuum degassing of drilling fluids. Trudy VNIIGAZ no.19/27: 131/144 '64 (MIRA 17:8)

DEGTEV, N.I.

Determining the pressure of a column of gaseous liquid on the well bottom. Gaz. prom. 8 no.4:7-9 '63. (MIRA 17:10)

DEGTEV, N.I.; [illegible]

Measuring the specific weight of gas-cut mass. Neftianik no.9:23-27 '64. (MIRA 18:5)

1. Ukrainskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta prirodnogo gaza.

SOV/124-57-9-10263

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 9, p 54 (USSR)

AUTHOR: Degtev, O. N.

TITLE: Atomization of Viscous Liquids (O raspylivanii vyazkikh zhidkostey)

PERIODICAL: Tr. Ural'skogo politekhn. in-ta, 1956, Nr 61, pp 95-105

ABSTRACT: Existing conceptions on the process of liquid atomization are stated. Analysis is made of formulas proposed by different authors for the calculation of the atomized-drop diameter. On the basis of extant data concerning the process of atomization the existence of two regimes of the atomization process is inferred: a) Jet breakup as the result of static instability, and b) secondary breakup of drops when the deciding factor is the aerodynamic forces. The author considers as inconsistent the efforts to obtain the final drop diameter as a function of the initial parameters with the aid of the theories of the instability of a jet as well as the theories based on the action of turbulence upon jet breakup. By investigating the forces acting upon a drop during secondary breakup (aerodynamic, internal-friction, and surface-tension forces) certain criteria are deduced characterizing the atomization process. The criterial equation for the atomization process of viscous

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Atomization of Viscous Liquids

liquids has the following form

$$D = A\,\Pi^{n}, \quad D = \frac{\rho\, w^{2} d}{\sigma}, \quad \Pi = \frac{\mu\, w}{\sigma}$$

where D is the breakup criterium, ρ is the density of ambient medium, μ is the viscosity of the atomized liquid, σ is the surface tension, w is the relative velocity of the drop, and d is its diameter. Experiments were conducted on the atomization of liquid slag obtained from a cupola furnace (composed of about 43% of silicon oxide, 24% of calcium oxide, about 17% of aluminum oxide, the balance consisting of oxides of iron and magnesium). Atomization was performed with the aid of a pneumatic nozzle and a device consisting of rotary vanes. After atomization the slag particles were air-cooled and then graded through screens with a view of determining the particle-size distribution curves. Experiments have shown that in the criterial interval of $\Pi < 40 < 1700$ (sic!) for slag atomization by means of rotary vanes the values of the criterial equation coefficients were 1.72 for A and 0.425 for n. Bibliography: 8 references.

Yu. F. Dityakin

SOV/124-58-4-4080

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 4, p 57 (USSR)

AUTHOR: Degtev, O. N.

TITLE: Schematic Aspects of the Deformation of Drops in a Flow of Gas and the Limits of Stability of the Drops (Skhema deformatsii kapel' v potoke gaza i granitsy ustoychivosti kapel')

PERIODICAL: Tr. Ural'skogo politekhn. in-ta, 1956, Nr 61, pp 106-112

ABSTRACT: This is a study of the question of deformation and breakdown of liquid drops in a gas flow. The author believes it possible to isolate characteristic conditions in the outflow of liquid jets (the presence or absence of a secondary breakdown of drops following disintegration of the main jet). It is assumed that (provided there is a marked influence of the forces of surface tension) a drop may be deformed to take the shape of either a disk or a cylinder with rounded-off ends. Having calculated the mean surface value of the normal pressure upon the sphere and equated it to the pressure exerted by the surface tension, the author obtains the value of the breakdown criterion at the beginning of deformation:

Schematic Aspects of the Deformation of Drops (cont.)

$$D = \frac{\rho w^2 d}{\sigma} = 9.2 \qquad (1)$$

where w and d are the relative velocity and diameter of the drop, ρ is the density of the gas, and σ is the coefficient of surface tension. The application of similar reasoning to a liquid cylinder (the ratio of its length to its diameter being 4) yields a critical value of:

$$D_* = \frac{\rho w_*^2 d}{\sigma} = 16.1 \qquad (2)$$

where w_* is the critical value of the relative velocity of the drop. The author goes on to compare the figures arrived at with the corresponding experimental values quoted by the reviewer and confirms their satisfactory agreement. The method used by the author provides only a rough approximation and can but give an idea regarding the order of magnitude of the breakdown criterion.

1. Liquid jets--Performance 2. Drops--Analysis 3. Drops--Deformation

M. S. Volynskiy

S/170/60/003/03/01/034
B014/B007

5,1230

AUTHORS: Baskakov, A. P., Degtev, O. N., Syromyatnikov, N. I.

TITLE: The Investigation of the Thermal Decomposition of Fuels by Using a Metallic Heat Carrier Heated by Means of High-frequency Currents

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 3, pp. 5-12

TEXT: The new method described of investigating the thermal decomposition of solid fuels in steady adjustable initial heating is based upon the use of a metallic heat carrier. The pulverized fuel and small metal balls are in this case filled into a decomposition chamber, and by careful mixing, uniform initial heating of the fuel is attained. An important factor in this method is the estimation of initial heating, and, for this purpose the characteristic number Nu = $\alpha d/\lambda$ determined by special experiments is given, the most favorable value of which is about 17.5. Here α is the heat exchange coefficient, and d is the ball diameter. A formula is given for the temperature difference between metal balls and the fuel, and further several experimental data are quoted from experi-

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The Investigation of the Thermal Decomposition of Fuels by Using a Metallic Heat Carrier Heated by Means of High-frequency Currents

ments carried out at the Institute mentioned under Association (UPI) and at the VOFVTI. From these preliminary experiments it may be seen that the fuel and the heat carrier inductively heated by means of a high-frequency current are practically uniformly heated. The authors describe the experimental arrangement shown schematically in Fig. 1. It consists of a quartz test tube, which is filled with a mixture of carbon granules and cast iron balls. The weight ratio between the two is given as amounting from 1:10 to 1:20. Heating rates of up to 200 degrees/sec were attained at the UPI and of up to 500 degrees/sec at the VOFVTI. The decomposition products formed in this initial heating are purified in an asbestos filter, after which they are cooled. Determination of the semicoke- and coal tar yield as well as the analysis of the gas, mainly converted to nitrogen- and oxygen-free gas are discussed. Experiments are carried out with peat and brown coal, and Table 1 shows the composition of one type of peat and two types of brown coal, as well as their grain sizes. In the diagrams of Figs. 2 and 3 the gas evolution for different

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The Investigation of the Thermal Decomposition of Fuels by Using a Metallic Heat Carrier Heated by Means of High-frequency Currents

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B014/B007

temperatures of the three fuels are graphically represented. Fig. 4 shows the dependence of the rate of gas evolution by peat upon time and upon temperature in semilogarithmic scale. Further, Tables 2, 3, and 4 show the mean gas compositions. (Table 2) as dependent on time (Table 3) and also a survey of the yields in semicoke, tar and water, and gas as well as the losses. There are 4 figures, 4 tables, and 17 references: 15 Soviet, 1 German, and 1 English.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova, g. Sverdlovsk
(Ural Polytechnic Institute imeni S. M. Kirov, City of Sverdlovsk)

Card 3/3

DEGTEV, O.N.; rabote uchastvovala TSIRLINA, N.I., inzh.

Effect of the nature of the heat-transfer agent on the yield and composition of gas during the thermal decomposition of peat. Inzh.-fiz.zhur. no.11:61-64 N '60. (MIRA 13:11)

1. Vostochnyy filial Vsesoyuznogo tepoltekhnicheskogo instituta im. F.E.Dzerzhinskogo, Chelyabinsk.
(Peat gasification)

DEGTEV, Vladi[illegible]
SURNAME, Given [illegible]

(3)

Country: Czechoslovakia

Academic Degrees: graduate physician ([illegible]rovany lekar)

Affiliation: Internal Department, Okre[illegible] Institute for People's Health (Interni oddeleni OUNZ) Chief Dr J. NECAS, [illegible]elnik

Source: Prague, Prakticky Lekar, Vol 41, No 15-16, Aug 21, 1961; pp 674-675

Data: "Case of Acute Poisoning with Chlorpromazine"

GPO 981643

DEGTEV, V.

Advanced experience for every pilot. Grazhd.av. 18 no.7: 8-9 Jl '61. (MIRA 14:8)
(White Russia--Flight training)

DEGTEV, V. M

USSR/Electricity
Heating, Electric
Heating, Industrial

Apr 1948

"High-Frequency Heating of Plastic Masses," V. I. Kalitvyanskiy, Cand Tech Sci, V. M. Degtev, Engr, All-Union Electrotech Inst imeni Lenin, 6 pp

"Elektrichest" No 4, pp 6-11.

The author gives an account of his experiences in high frequency heating as applied to the processing of different plastics. A 5kw., 20/Mc/s industrial equipment is described for the thermal treatment of plastic specimens. Curves are given showing temperature-time relationships, optimum heating conditions and relationship of heatime time to specimen thickness.

PA 69T24

S/112/59/000/013/010/067
A002/A001

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1959, No. 13, p. 13, # 26247

AUTHOR: Degtev, V. M.

TITLE: The Technological Peculiarities of the Production of Heat-Resistant Commutator Micanite With Ammophos

PERIODICAL: Tr. Vses. elektrotekhn. in-ta, 1958, No. 62, pp. 272-287

TEXT: The use of ammophos, di-ammonium phosphate $(NH_4)_2HPO_4$, as a binder results in a considerable increase in the heat resistance and in some physical-mechanical properties of commutator micanite. The presence of ammophos residues in micanite not chemically bound with mica deteriorates the properties of micanite, especially when it is moistened. Using correctly selected conditions of pressing and heat treatment, a practically complete removal of free ammophos can be achieved, while the content of watersoluble matter is $\leq$ 0.15-0.5%. Micanite has high electrical insulation properties and surpasses commutator micanites, manufactured with shellac, glyptal, etc. The properties of such micanite are: heat resistance of the order of 700°C; small shrinkage during heating; absence

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The Technological Peculiarities of the Production of Heat-Resistant Commutator Micanite With Ammophos

of slipping of mica and flowing-out of the binder under the effect of high pressures and high temperatures; arc resistance; and moisture resistance. A combined method of heating the strongly moistened materials by currents of power and high frequency has been developed to ensure the required conditions of pressing micanite with even heating of the micanite pack. Micanite will attain a satisfactory quality when using a 15-18%-solution of ammophos. In this case, the quality of ammophos which is to be entered into the preparation (in conversion to dry ammophos) amounts to about 3-5%. During the heating it is decomposed according to one of the reactions cited: 1) With formation of metaphosphoric acid, water vapor and gaseous ammonia:

$$(NH_4)_2HPO_4 \rightarrow HPO_4 + 2\ NH_3 + H_2O.$$

2) With disintegration according to a more complicated scheme:

$$(NH_4)_2HPO_4 \rightarrow 2H_3PO_4 + 4\ NH_3;$$

$$2(H_3PO_4 \rightarrow H_4P_2O_7 + H_2O \rightarrow P_2O_5 + 3\ H_2O.$$

During the interaction of the fusion with mica, either a mica solution in

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The Technological Peculiarities of the Production of Heat-Resistant Commutator Micanite With Ammophos

metaphosphoric acid or phosphoric anhydride is formed, or products of their interaction. Phosphoric anhydride interacting with mica forms a gluing, insoluble matter. This is confirmed by the approximately equal content of watersoluble matter in mica and finished micanite. The dissolving rate of mica is determined to a considerable extent by the heat resistance of mica and by the temperature of the ammophos fusion. The temperature conditions of micanite pressing must be established under consideration of the quality of the mica used, which must be uniform in respect to heat resistance (heat-resistant phlogopite, containing up to 0.5-0.7% soft phlogopite, having a swelling capacity of approximately 400-700% at 850-930°C). It is possible to manufacture ammophos-bounded micanite from muscovite, but in this case the temperature of pressing must be increased from 400 to 520-550°C. The quality of commutator ammophos-bounded micanite hardly depends on the specific pressure during pressing. The pressure must be applied in steps to eliminate the squeezing of the ammophos fusion during the drying time and during the pressing of the pack. There are 4 references.

L. A. E.

Translator's note: This is the full translation of the original Russian abstract.

Card 3/3

DEGTEV, V. M., Candidate Tech Sci (diss) -- "A study of the possibility of using dielectric heating in the preparation of pressed electrical-insulating micanites", Moscow, 1959. 20 pp (Main Admin of Sci Res and Design Organizations of the Gosplan USSR, All-Union Order of Lenin Electrical Engineering Inst im V. I. Lenin), 150 copies (KL, No 23, 1959, 165)

SOV/81-59-10-35625

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 10, p 313 (USSR)

AUTHOR: Degtev, V.V.

TITLE: Technological Peculiarities of the Production of Heat-Resistant Commutator Micanite on Ammophos

PERIODICAL: Tr. Vses. elektrotekhn. in-ta, 1958, Nr 62, pp 272-287

ABSTRACT: The technological peculiarities of the production of heat-resistant commutator micanite with ammophos $(NH_4)_2HPO_4$ are considered. It is noted that the quality of ammophos micanite depends in a considerable measure on the presence of free diammonium phosphate in it which does not form chemical compounds with mica[15] during pressing. Micanite subjected to insufficient thermal treatment contains an excess quantity of water-soluble substances (more than 1 - 1.5%). In material of good quality their content is 0.15 - - 0.5%. It has been established that micanite acquires a completely satisfying quality at a short cycle of pressing and by using a 15 - 18%-solution of diammonium phosphate for gluing. The technology of gluing micanite with ammophos remains the same as in the production of common micanites with organic binding resins, manufactured by the wet method. The temperature

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30V/81-59-10-35625

Technological Peculiarities of the Production of Heat-Resistant Commutator Micanite on Ammophos

condition of pressing micanite with ammophos is cited which is based on the results of investigating the temperature dependence of the beginning of mica active dissolution (muscovite, phlogopite) in a melt of ammophos. The results of the experiments on establishing the optimum specific pressure of micanite have shown that the quality of commutator micanite with ammophos almost does not depend on the specific pressure if it changes within the range 15 - 200 kg/cm^2.

G. Maslennikova

Card 2/2

DEGTEVA, L. V.

51-2-11/15

AUTHORS: Vertsner, V.N., Degteva, L.V. and Kharionovskiy, Yu.S.

TITLE: A method of observation of the diffraction-grating profile using electron microscope. (Sposob nablyudeniya profilya diffraktsionnykh reshetok v elektronnom mikroskope)

PERIODICAL: "Optika i Spektroskopiya" (Optics and Spectroscopy) 1957, Vol.3, No.2, pp.181-183 (U.S.S.R.)

ABSTRACT: Both glass and aluminium diffraction gratings were studied. For glass gratings a thin silver replica was prepared by vacuum deposition; this was strengthened by an electrodeposited copper layer 0.01-0.02 mm thick. The grating and the replica were separated in distilled water. For aluminium gratings double-replica technique was used. First a naproduoh (parlodion) replica was prepared, using a 5% solution in amyl acetate. From this a silver-copper replica, as described above, was made and parlodion dissolved off in amyl acetate. The replicas were bent at right angles to the diffraction grooves and the profile photographed using an electron microscope. The results are shown in Fig.1 (glass diffraction-grating profile, 50 lines/mm, magnif. X 4000) and Fig.2a (aluminium grating profile, 1200 lines/mm, magnif. not stated). Fig.2b shows superposition of the profile of Fig.2a onto a microphotograph of the replica. This profile study is useful in investigation of the effect of groove-cutter shape and load. It can be also used to study polished surfaces:

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A method of observation of the diffraction-grating profile using electron microscope. (Cont.)

steel profile is shown in Fig.3 (X 9600). The authors thank Academician A.A.Lebedev for the interest he took in the work, F.M.Gerasimov for the samples and advice, and A.I.Kuznetsov for help in carrying out the experiments. There are three figures and three references, all Slavic.

SUBMITTED: March 4, 1957.
AVAILABLE: Library of Congress

ACCESSION NR: AT4019290 S/0000/63/003/001/0083/0084

AUTHOR: Vertsner, V. N.; Degteva, L. V.

TITLE: Electron microscopic investigation of the catalyzed crystallization of glass

SOURCE: Simpozium po stekloobraznomu sostoyaniyu. Leningrad, 1962. Stekloobraznoye sostoyaniye, vy* p. 1: Kataliziravannaya kristallizatsiya stekla (Vitreous state, no. 1: Catalyzing crystallization of glass). Trudy* simpoziuma, v. 3, no. 1. Moscow, Izd-vo AN SSSR, 1963, 83-84, insert pages between p. 96 and 97

TOPIC TAGS: glass, crystallization, electron microscopy, glass 13, catalyzed crystallization, titanium glass, glass crystallization

ABSTRACT: The crystallization of glass 13 containing titanium (not exceeding 10%) as a catalyst was investigated. The initial glass, as well as transparent and opaque glasses obtained by different thermal treatments, were studied by the replica method. Carbon replicas shadowed with chromium or platinum-palladium alloy were used, but carbon replicas made with preliminary shadow casting were preferred. The different electron microscopic patterns obtained from the structure of the three types of glass were compared. The structure of the glasses during prolonged thermal treatment at a temperature

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ACCESSION NR: AT4019290

100 C lower than their crystallization temperature was studied. A structural change, as compared to the initial glass, was found only in a glass heated at 635 C for 300 hours. Finally, the variation of glass structure with the TiO_2 content was investigated. The glass structure changed only with additions of TiO_2 up to 11%. Glasses without titanium and with TiO_2 contents below 11% are structureless, but in glasses with a higher TiO_2 content, crystallization occurs. Orig. art. has: 6 figures.

ASSOCIATION: None

SUBMITTED: 17May63 DATE ACQ: 21Nov63 ENCL: 00

SUB CODE: MA NO REF SOV: 000 OTHER: 000

2/2

Card

1. DEGTEVA, M. N. - ROMANOV, B. M.

2. USSR (600)

4. Ural Mountains - Geology

7. Geological map of the Urals in the scale of 1: 50,000, plate O-41-124-A (report on the work of the Bazhenovskii geological-surveying party of the Ural Geological Administration for 1941). (Abstract.) Izv.Glav.upr.geol. fon. no. 3, 1947

9. Monthly List of Russian Accessions, Library of Congress, March 1953, Unclassified.

LARIYONOV, L. F.; DEGTEVA, S. A.; LESNAYA, N. A.

Experimental data on an antineoplastic preparation phenestrin. Vop. onk. 8 no.4:12-14 '62. (MIRA 15:4)

1. Iz laboratorii eksperimental'noy khimioterapii Instituta eksperimental'noy i klinicheskoy onkologii AMN SSSR (dir. - deystv. chl. AMN SSSR, prof. N. N. Blokhin). Adres avtorov: Moskva, D-364, Volokolamskoye shosse, 30, Institut eksperimental'noy i klinicheskoy onkologii.

(CHOLESTEROL) (ACETIC ACID) (CYTOTOXIC DRUGS)

DEGTEVA, S.A.

Spectrum and selectivity of the antineoplastic effect of phenesterine. Vop. onk. 10 no.12:52-56 '64. (MIRA 18:6)

1. Iz laboratorii eksperimental'noy khimioterapii (zav.-chlen-korrespondent AMN SSSR prof. L.F. Larionov) Instituta eksperimental'noy i klinicheskoy onkologii AMN SSSR (dir.- deystvitel'nyy chlen AMN SSSR prof. N.N. Blokhin). Adres avtora: Moskva, I-110, ulitsa Shchepkina, 61/2, korpus 9, Institut eksperimental'noy i klinicheskoy onkologii AMN SSSR.

DEGTEVA, S.A.

Antineoplastic effect of palmitoyl sarcolysine and [illegible] sarcolysine. Vop. onk. 11 no.8:81-83 '65.

(MIRA 18:11)

1. Iz laboratorii eksperimental'noy khimioterapii (zav. -- chlen-korrespondent AMN SSSR prof. L.F.Larionov) Instituta eksperimental'noy i klinicheskoy onkologii AMN SSSR (direktor -- deystvitel'nyy chlen AMN SSSR prof. N.N.Blokhin).

YABLONOVSKAYA, L.Ya.; DEGTEVA, S.A. (Moskva)

Effect of phenesterin on glial tumors of the brain in mice. Arkh. pat. 27 no. 12:60-63 '65. (MIRA 18:12)

1. Laboratoriya eksperimental'noy neyroonkologii Instituta neyrokhirurgii imeni N.N. Burdenko (dir. - deystvitel'nyy chlen AMN SSSR prof. B.G. Yegorov) AMN SSSR i laboratoriya eksperimental'noy khimioterapii (zav. - chlen-korrespondent AMN SSSR prof. L.F. Larionov) Instituta eksperimental'noy i klinicheskoy onkologii (dir. - deystvitel'nyy chlen AMN SSSR prof. N.N. Blokhin) AMN SSSR. Submitted March 27, 1964.

LOGVINOVICH, E.G.; BRIKER, F.Yu.; DEGTEVA, S.F.; TSYGANKOVA, G.I.

Operational and economic efficiency of heavy-tonnage tankers.
Trudy TSNIIMF 54:39-53 '64 (MIRA 18:1)

L 11212-67 EWT(m)/EWP(w) IJP(c) EM

ACC NR: AR6020078 SOURCE CODE: UR/0124/66/000/001/V089/V089

42

AUTHOR: Preyss, A. K.; Degteva, T. A.

TITLE: Separation of normal stresses in axisymmetric deformation of models during studies by the optical polarization method

SOURCE: Ref zh. Mekhanika, Abs. 1V720

REF SOURCE: Polyarizats. optich. metod issled. napryazheniy, M., Nauka, 1965, 75-81

TOPIC TAGS: model, light polarization, stress analysis, material deformation

ABSTRACT: A method is proposed for isolating normal stresses in the case of the axisymmetric stressed state during studies by the optical polarization method. In using the resultant formula for computing normal stresses, it is sufficient to have the value of the differences between the normal stresses and the tangential stresses obtained by direct transillumination of part of the diametric cross section of the model. Formulas are written out for determining the radial and axial displacements of a point on the diametric cross section. The proposed method is verified on the basis of a problem on compression of a circular cylinder with an annular channel of hyperbolic profile. Comparison of experimental and theoretical stresses showed that the maximum error is less than 10%. The discrepancy between theoretical and experimental data on radial displacement is insignificant. V. D. Kopytov. [Translation of abstract]

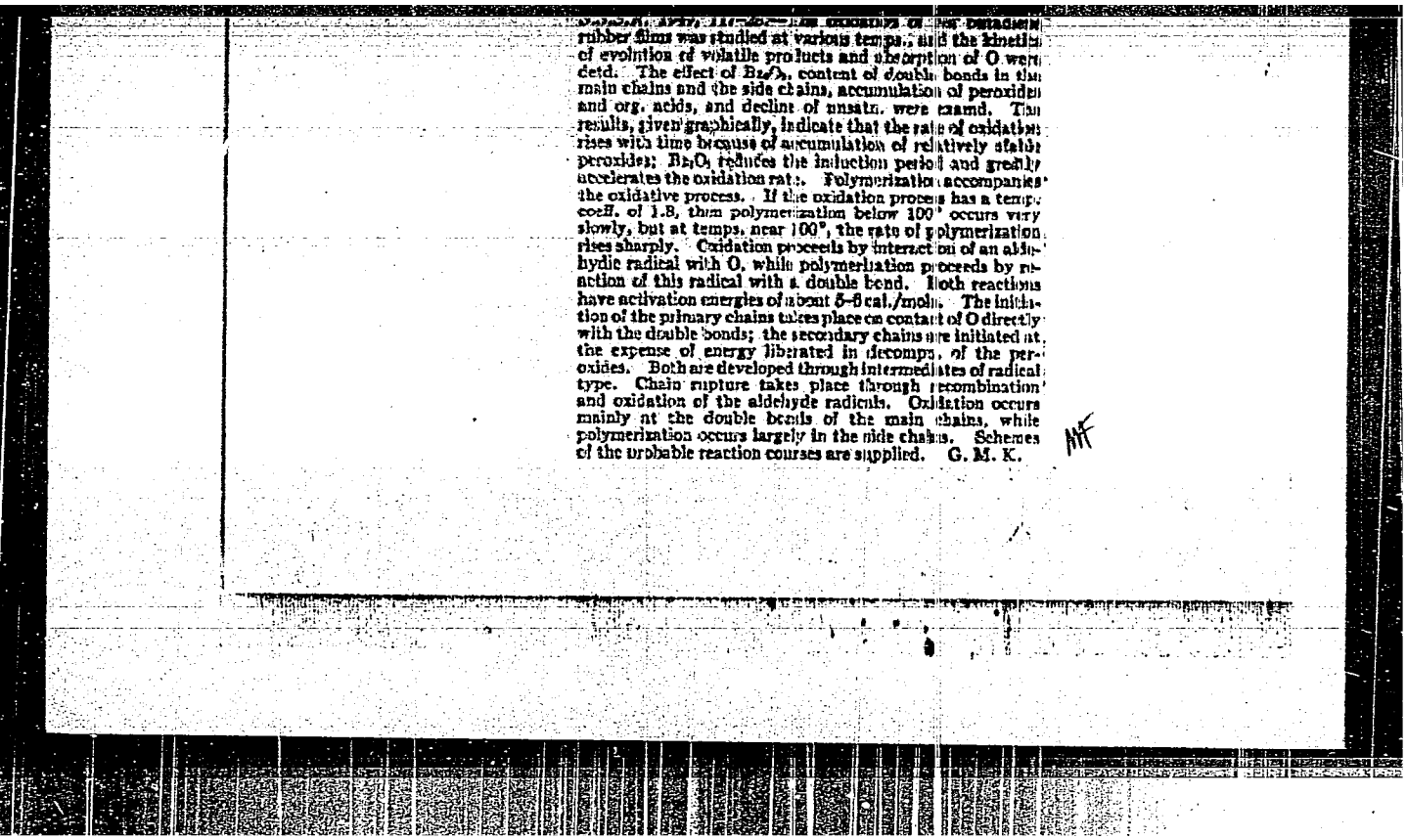
SUB CODE: 11, 20

Card 1/1 jb

DEGTEVA, T. G.

Oxidation of polydienes. I. Methods of studying the kinetics of oxidation of rubber. A. S. Kuz'minskiy, L. L. Shanin, T. G. Degteva, and K. A. Lapteva. Kolloid. Zhur. 9, 374-80 (1947).- The rubber films were spread on a glass frame which then was suspended on a spring balance recording 0.5 mg. The balance hung in a tube which could be connected with a system of O_2 circulating at a const. pressure so that the degree of oxidation was detd. by both the increase in wt. of the rubber and the decrease in vol. of the O_2. The volatile reaction products present in the circulating O_2 were condensed in traps cooled with liquid air; these traps were disconnected from the app., emptied, and connected again without interrupting the circulation. After the expt. the peroxide O, the degree of unsatn., the no. of free CO_2H groups and the no. of esterified CO_2H groups were detd. in the oxidized rubber with KI, ICl, 0.1 N alc. NaOH in the cold, and 0.1 N alc. NaOH at 70°, resp. For detg. the d. of the rubber a special pyenometer was constructed (illustrated). The swelling capacity was detd. by immersing a sample in benzene for several hrs., measuring the gradual loss of wt. of the sample in air on a spring balance, and extrapolating the 2nd (linear) portion of the curve to the origin of the time axis. The error of this method is 5% or less. The rubber was extd. with $CHCl_3$ in the absence of air. Its mech. properties were also were detd. The rubber film must be thinner than 0.01 cm. for Na butadiene polymer to avoid the effects of O_2 diffusion in the film. II. Change of the chemical properties of sodium-butadiene rubber on oxidation with molecular oxygen. Ibid. 10, 26-32(1948). - Heating polybutadiene (I) films in a high vacuum lowers their degree of unsatn., N, e.g., by 16% within 1 hr. at 100°. When I is heated in O, addn. of O starts after a latent period t which is almost independent of the O pressure P (150-760 mm. Hg), but is smaller the higher the temp. (6 hrs. at 80°, less than 1 hr. at 110°). After t, the rate of oxidation v increases about twice between 80 and 90° and about 1.3 times between 100 and 110°, and also slightly increases with P, and then falls when the limit L of oxidation is near; L is almost independent of temp. (0.3 g. O per 1 g.I). At 100° and 760 mm. Hg, v

0.000275 c^{16} (in millimol. O per 54 g. I per hr.), c is the concn. of peroxide O in millimol. per 54 g. I. Addn. of styrene to butadiene increases t and L. The wt. increase of I during oxidation is equal to the amt. x of O consumed, but oxidation produces volatile substances which can be isolated when O circulates through the reaction vessel and a cold trap. The amt. of volatile substances is approx. 0.23 x at low x and 0.35 x at large x. The oxidized polymer contains CO_2H groups whose no. increases with x less rapidly than N decreases. A part of it (e.g., 16%) is sol. in $CHCl_3$. III. Change of physical properties of sodium-butadiene rubber during oxidation with molecular oxygen. A. S. Kuz'minskiy and L. L. Shanin. Ibid. 212-17- When 100 parts Na-butadiene rubber (I) took up 17 parts O, the d. increased from 0.895 to 1.109. When 21



rubber films was studied at various temps., and the kinetics of evolution of volatile products and absorption of O were detd. The effect of Bz_2O_2, content of double bonds in the main chains and the side chains, accumulation of peroxides and org. acids, and decline of unsatn. were examd. The results, given graphically, indicate that the rate of oxidation rises with time because of accumulation of relatively stable peroxides; Bz_2O_2 reduces the induction period and greatly accelerates the oxidation rate. Polymerization accompanies the oxidative process. If the oxidation process has a temp. coeff. of 1.8, then polymerization below 100° occurs very slowly, but at temps. near 100°, the rate of polymerization rises sharply. Oxidation proceeds by interaction of an aldehydic radical with O, while polymerization proceeds by reaction of this radical with a double bond. Both reactions have activation energies of about 5–8 cal./molh. The initiation of the primary chains takes place on contact of O directly with the double bonds; the secondary chains are initiated at the expense of energy liberated in decomps. of the peroxides. Both are developed through intermediates of radical type. Chain rupture takes place through recombination and oxidation of the aldehyde radicals. Oxidation occurs mainly at the double bonds of the main chains, while polymerization occurs largely in the side chains. Schemes of the probable reaction courses are supplied. G. M. K.

AHF

DEVYEVA, T. G.

USSR/Chemistry - Butadiene Apr 49
Chemistry - Oxidation

"Studies of the Mechanism Whereby Na-Butadiene Polymers are Oxidized," A. S. Kuz'minskiy, T. G. Degteva, K. A. Lapteva, Moscow Inst of Fine Chem Technol imeni M. V. Lomonosov, 16½ pp

"Zhur Prik Khim" Vol XXII, No 4

Shows that oxygen taking part in all stages of the reaction is contained chiefly in peroxides, acids, and ethers. Studies oxidation of polymers and accumulation of intermediate and end products for different temperatures. Also diagrams concurrent

60/49T26

USSR/Chemistry - Butadiene (Contd) Apr 49

oxidation and polymerization which are expanded, generally into primary-chain and secondary-chain double bonds, respectively. Submitted 10 May 48.

60/49T26

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Effect of sulfur on the oxidation of sodium-butadiene rubber. A. S. Kuz'minskii, T. G. Degtyeva, K. A. Lapteva, and N. N. Lezhnev. *Doklady Akad. Nauk S.S.S.R.* 73, 223–6(1950).—Free, i.e., unbound, S inhibits oxidation, with the inhibition increasing with the S content (0.00–0.61%). If S is introduced during autocatalysis, the latter is not suppressed but is considerably slowed down. The deceleration of the absorption of O_2 is due to interaction of S with the intermediate oxidation products of the rubber; in this process, free S is progressively bound, and, by extn. analysis, its amt. is shown to decrease linearly with time, i.e. at a const. rate. Thus, at 90°, the free S decreased from an initial 0.3% (0.084 *M* per l.) to zero in 9 hrs. when the amt. of O_2 absorbed was 140 millimoles per mole rubber. In the presence of S, the amt. of volatile products (HCO_2H + HCHO) is reduced, with the ratio HCO_2H/HCHO remaining unchanged. Further, in the presence of S the equil. concn. of the intermediate peroxides, i.e., the equil. concn. of free radicals, is reduced. Introduction of S results in considerable structure formation (i.e. decrease of the initial unsatn.) even in a N_2 atm.; whereas without S, *in vacuo*, there is no structure formation; at 90°, with S, unsatn. decreases by 16%, without a concomitant binding of S; at 143°, a small amt. of S is bound in this process, owing probably to traces of O_2. It is the free radicals, initiated by O_2, that are apt to react further either with O_2 or with S or with the double bonds of the rubber, unless and until they are inactivated by recombination or otherwise. Comparison of the activation energies of the primary act of binding of O_2 at double bonds of the main chain, 22.8 kcal. per mole (1 mole of rubber being defined by the presence of 1 aliphatic double bond) and of vulcanization, 27 kcal. per mole, confirms that the rate of the reaction with O_2 is much greater than with S; the latter forms with rubber no intermediates of the type of peroxides. Chain lengths, detd. from the stationary stages of the oxidation, where the rates of formation and of decompn. of the peroxides are equal, and the ratio of the rates of expenditure of O_2 on the chain reaction and of the decompn. of the peroxides gives the chain length, are found, at 90°, 3.1 in the absence of S, and 1.8 with 0.3% S introduced. Hence, the rupture consts. σ are, for O_2 and S, ~ 1000 and ~ 62, resp., i.e. at equal concns. of O_2 and S the probability of chain rupture on S is $^1/_{16}$ that on O_2. However, inasmuch as with 0.3% S added, its initial concn. is about 23 times that of the dissolved O_2, the initial probabilities of chain rupture on O_2 and S come out approx. even. For a true inhibitor, such as phenyl-β-naphthylamine, σ is of the order 10^6, i.e. by $\sim 10^4$–10^5 greater than for S. The rate equation of the autocatalytic oxidation of rubber (*C.A.* 44, 9181*f*), $w = k_3[\Pi][P]$, where P = peroxides, and Π = double bonds (with k_3 including the rate const. of the interaction between the radicals and O_2, the ratio of the equil. concn. of peroxides and radicals, and, in the denominator, the sum of the rupture probabilities on O_2 and(or) S), needs to be corrected for secondary reactions. Empirically, this correction amounts to a factor $(1 - \alpha[Q]^{-1/4})^{-1}$, where the const. α depends on the temp. and Q is the O_2 bound by the rubber. The corrected rate w, at 90°, is then $w = 8.68 \times 10^{-4}[\Pi][P][O_2]/(4.3 + 16[S])(1 - 0.2[Q]^{-1/4})$. Rates calcd. with the aid of this equation coincide very satisfactorily with the exptl. curve of Q as a function of time. N. Thon

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Simultaneous oxidation of rubber and solvent in swollen vulcanizates. R. M. Belinkevich, G. Berlyn, and A. S. Kuzminskii. (*Dokl. Akad. Nauk. SSSR*, 1953, 93, 81—83).—Swelling of Buna rubber by a solvent may accelerate (tetralin) or decelerate (decalin) the rate of oxidation during vulcanisation: acceleration leads to a greater fall of elasticity modulus. The effect is linked with the production and breakdown of peroxides from the solvents.

R. C. MURRAY.

DEGTEVA, T. G.

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M. A. YOUTZ
Deposit

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3932* Oxidation Destruction of Swollen Vulcanized Rubbers. Okislitel'naia destruktsiia nabukhshikh vulkanizatov. (Russian.) T. G. Degteva and A. S. Kuz'minskii. *Zhurnal prikladnoi khimii*, v. 28, no. 12. Dec. 1955, p. 1315-1321.

Study of oxidation destruction of vulcanized rubbers of various types showed that, despite presence of solvent, both destruction and vulcanization take place simultaneously. Effect of inhibitors on these processes. Relation between inhibitors, type of rubber, and solvent. Graphs, tables. 3 ref.

DEGTEVA, T. S.

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3181. Oxidative destruction of swollen vulcanizates. T. S. Degteva, and A. S. Kuz'minskii. *Zhur. Prikhl. Khim.*, 1956, **28**, 1314-21; *Chem. Abs.*, 1956, **50**, 6083. Sodium butadiene rubber vulcanizates, swollen with Decalin after vulcanization by various methods (thermal, thiuram, diphenylguanidine, zinc ethylphenyl dithiocarbamate), were examined for oxidative destruction by oxygen by the technique of R. M. Belitskaya, et al, (cf. Rubb. Abs., 1954, **32**, 4374). The kinetic curves of oxygen absorption with and without inhibitors, and the curves of changes of mechanical properties are shown. In the oxidative attack destruction of the structural units and their aggregation into more complex units occur simultaneously. Predominance of the former is achieved only in the presence of inhibitors. With very high proportions of inhibitors, it is possible to achieve the predominance of aggregation over destruction. The action of inhibitors depends considerably on the previous history of the rubber and on the presence of the swelling solvent. 382D21.60323152

2 M-A, 40 UT 2 copies

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SOV/81-59-9-33443

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 9, p 561 (USSR)

AUTHORS: Degteva, T.G., Belitskaya, R.M., Kuz'minskiy, A.S. (Comm. I); Degteva, T.G., Kuz'minskiy, A.S. (Comm. II)

TITLE: The Physico-chemical Foundations of the Process of Oxidation Destruction of Swollen Vulcanizates. Communication I. On the Conjugated Oxidation of Rubbers and Solvent in Swollen Vulcanizates. Communication II. The Effect of Inhibitors on the Oxidation Destruction of Swollen Vulcanizates

PERIODICAL: Tr. N.-i. in-ta rezin. prom-sti, 1956, Nr 3, pp 73 - 85, 86 - 101

ABSTRACT: I. The effect of the solvent (S) on the process of oxidation of a vulcanizate (V) from SKB has been investigated. The kinetics of the oxidation of S and swollen V was examined on an oxidation installation. In the oxidation of S the kinetics of accumulation of stable peroxides in them has been studied. At 150°C S can accelerate, as well as inhibit the oxidation of V. With an increase in decomposition rate of the peroxides formed in the oxidation of S the intensity of the process of combined oxidation of V and S increases. The oxidation of S and swollen V is a conjugated process. The efficiency of the action of S on the

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The Physico-chemical Foundations of the Process of Oxidation Destruction of Swollen Vulcanizates. Communication I. On the Conjugated Oxidation of Rubbers and Solvent in Swollen Vulcanizates. Communication II. The Effect of Inhibitors on the Oxidation Destruction of Swollen Vulcanizates.

oxidation of V under similar conditions depends on the rate of formation and decomposition of peroxides of S. II. The behavior of inhibitors (I), as well as of sulfur bonds in the oxidation of swollen V of SKB has been investigated. In the oxidation of V the processes of destruction (D) and structuralization take place simultaneously, in which case D is predominant only in the presence of I. In proportion to the I consumption the structuralization rate can become equal or exceed the D rate. The behavior of oxidation I in swollen and non-swollen V is different due to the appearance of radicals of another reactivity in the conjugated oxidation of rubber and S than in the oxidation of rubber alone. The vulcanization structures can decompose with the separation of sulfur. This decreases the oxidation of V. In the case of heating V without O_2 at 150°C only polysulfide bonds are decomposed, the heating of non-swollen V leads to structuralization.

V. Glagolev

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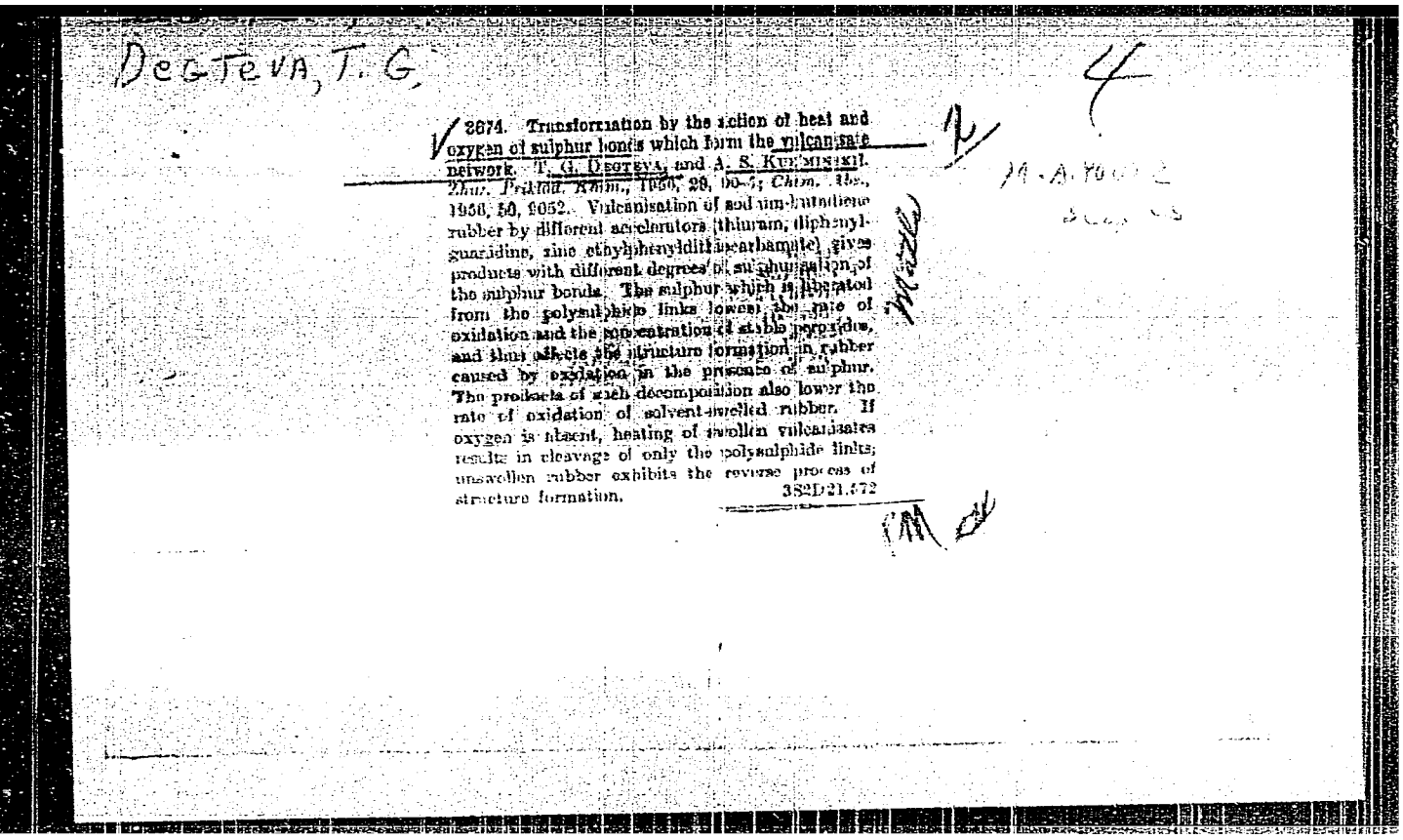
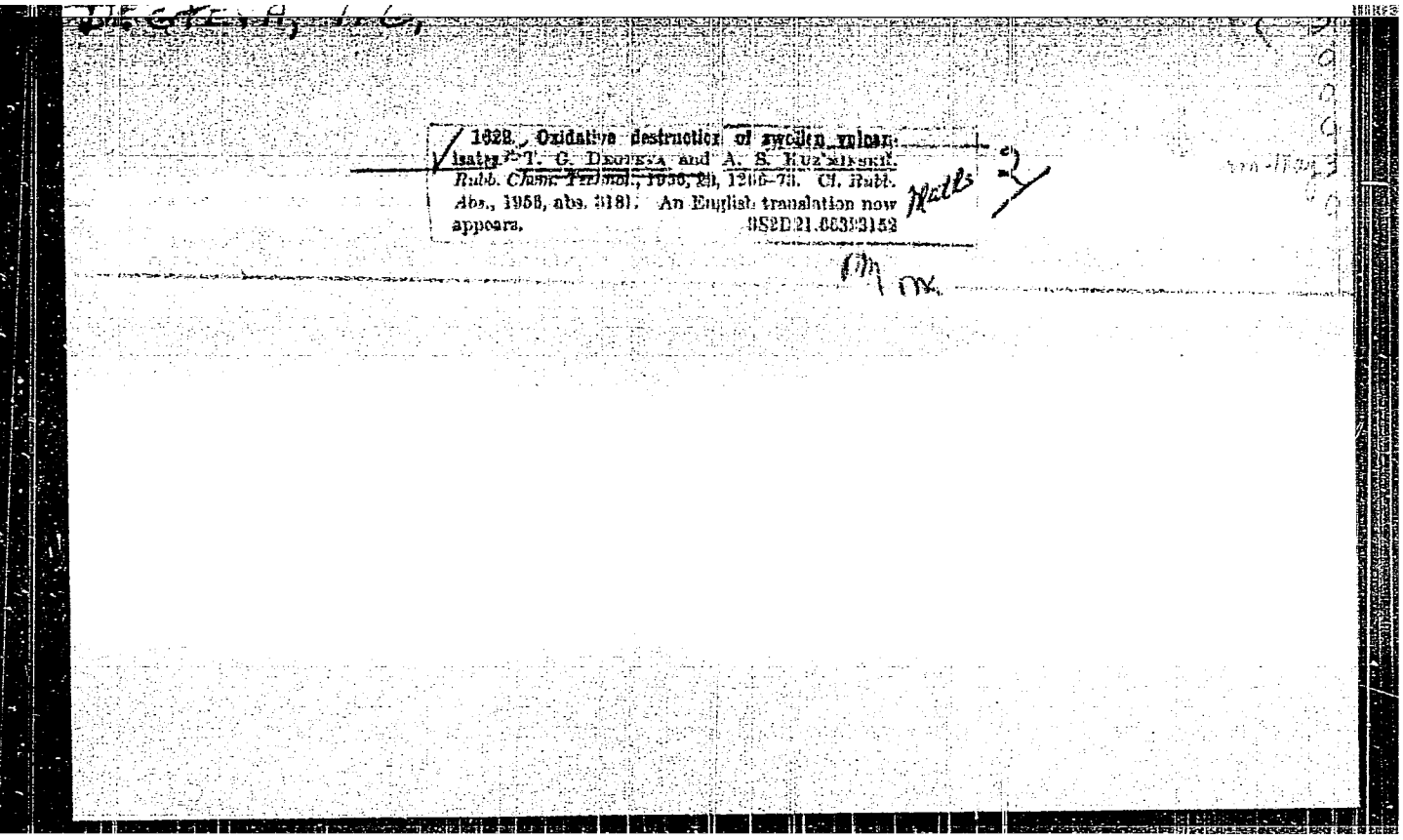


DegTeva, T. G.

2674. Transformation by the action of heat and oxygen of sulphur bonds which form the vulcanizate network. T. G. Degteva, and A. S. Kuz'minskii. *Zhur. Prikhl. Khim.*, 1956, 29, 66-5; *Chim. Ins.*, 1956, 50, 2052. Vulcanisation of sodium-butadiene rubber by different accelerators (thiuram, diphenylguanidine, zinc ethylphenyldithiocarbamate) gives products with different degrees of sulphurisation of the sulphur bonds. The sulphur which is liberated from the polysulphide links lowers the rate of oxidation and the concentration of stable peroxides, and thus affects the structure formation in rubber caused by oxidation in the presence of sulphur. The products of such decomposition also lower the rate of oxidation of solvent-swelled rubber. If oxygen is absent, heating of swollen vulcanizates results in cleavage of only the polysulphide links; unswollen rubber exhibits the reverse process of structure formation. 382D21.672



1628. Oxidative destruction of cyclic ureas. T. G. Degtyareva and A. S. Kuz'minskiĭ. *Rubb. Chem. Technol.*, 1956, 29, 1206–7. Cf. Rubb. Abs., 1958, abs. 3181. An English translation now appears. 8S2D21.0639152

Degteva, T. G.

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1620. Transformation by the action of heat and oxygen of sulphur bonds which form the vulcanizate network. T. G. DEGTEVA and A. S. FUZ'MINSKII. *Rubb. Chem. Technol.*, 1956, 29, 1278–81. Cf. *Rubb. Abs.*, 1956, abs. 3674. An English translation now appears. 3821D21,879

Jan-May

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DEGTEVA, T. G., Master Chem Sci -- (diss) "Investigating the Influence of the Chemical Nature of Solvents on the Thermic Oxidation of Rubber in Solutions." (Moscow Lomonosov Inst of Fine Chem & Technology. Sci-Res Inst of Rubber Industry), 110 copies (KL, No 39, 1957)

DEGTEVA, T.G.

AUTHOR DEGTEVA, T.G. and KUZ'MINSKIY, A.S.

TITLE Influence of the Chemical Nature of Solvents on the Oxidation of Rubber in Solutions. (Vliyaniye khimicheskoy prirody rastvoriteley na okisleniye kauchuka v rastvorakh.- Russian)

PERIODICAL Doklady Akademii Nauk SSSR 1957, Vol 115, Nr 2, pp 339-342 (U.S.S.R.)

20-2-40/62

ABSTRACT

Many research workers use rubber solutions in the modelling of oxidation processes which take place in rubber in a solid state. Chief attention is in this connection paid to the transformation of the polymers themselves. As far as the solvent is concerned (footnote: under that have to be understood low-molecular rubber - dissolving hydrocarbons), its parts in the oxidation of rubber solutions is not at all discussed. The participation of the solvent in the mentioned process, however, becomes obvious from the generally accepted radical chain mechanism of the oxidation of hydrocarbons. The object of the present investigation was a study of the influence of the chemical nature of the solvent, as may be seen from the title. Purified sodium-butadiene rubber dissolved in aromatic, naphthene- and naphthenearomatic hydrocarbons was investigated.

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Influence of the Chemical Nature of Solvents on the Oxidation of Rubber in Solutions.

These latter had a varied oxidation reactivity. A special apparatus was constructed for the oxidation of solutions and solvents, in order to abolish diffusion inhibitions of oxygen. The kinetic oxidation curves recorded in ill.1 explain the oxidation speed of 1% rubber solutions. It increases in the series: toluol < xylol < decalin < ethylbenzene < isopropylbenzene < tetralin. These substances themselves form a special series: toluol < xylol < ohtylbenzene < isopropylbenzene. In benzene 1% rubber solutions are slowlier oxidized than in toluol- The differences can have been caused only be different action of the solvent on the development of the radical chain process. The problem rises, on which elementary acts of the reaction the solvent acts most essentially, and in which manner its chemical nature becomes effective in this connection. It follows from published data and some considerations that the seizing of the radicals R˙ and ROO˙ by the benzene molecules must lead to the separation of the primary oxidation chain, whereas the seizing of the radicals RO˙ and ˙OH must lead to a separation. In the transition from benzene to toluol the polymeric radical ROO˙ develops a new possibility of stabilization, namely by separation of a hydrogen molecule

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Influence of the Chemical Nature of Solvents on the Oxidation of Rubber in Solutions.

from the methyl groups of toluol under formation of a little active benzyl radical. This latter comparatively readily enters interaction with oxygen and forms a radical

This radical, in case that it is not seized by a toluol molecule, can stabilize on separation of hydrogen under formation of toluol hydroperoxide. The reaction of transmission of the oxidation chain from the rubber molecule to the solvent's molecules leads to an increase of this chain in length. On conversion from toluol to xylol, ethylbenzene and isopropylbenzene the movability of hydrogen in the side chain increases. Thereby the oxydation speed in the mentioned series increase still further. The influence of the various chemical natura of the solvent's molecules manifests itself also in tetralin and decalin. Intermediate products comparati-

Influence of the Chemical Nature of Solvents on the Oxidation of Rubber in Solutions.

vely rapid accumulate in tetralin. They decompose and promote the autocatalytic oxidation of rubber solutions. At 90°C the oxidation in decalin occurs very slowly, since the peroxide radicals are not able of separating an H-atom from the solvent's molecule. At 100°C the speed abruptly increases. Thus the solvents can slow down or accelerate the oxidation or they can stand apart from the process by acting as diluents. After the accelerating action they form a series: tetralin < isopropylbenzene < ethylbenzene; after the reterding action: benzene < toluol < xylol.
(3 Illustrations, 5 Slavic references)

ASSOCIATION: Scientific research institute of rubber industry. (Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti)

PRESENTED BY: P.A. REBINDER, Member of the Academy, Feb. 21, 1957
SUBMITTED: -
AVAILABLE: Library of Congress.

DEGTEVA, T.G.; KUZ'MINSKIY, A.S.

Effect of the chemical nature of solvents on the oxidation of rubber in solutions. Vysokom.soed. 1 no.1:73-83 Ja '59. (MIRA 12:9)

1. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.
(Rubber) (Oxidation)

SOV/80-32-2-26/56

AUTHORS: Degteva, T.G., Belitskaya, R.M., Kuz'minskiy, A.S.

TITLE: The Effect of Phenyl-β-Naphthylamine and Sulfur on the Oxidation of Hydrocarbons (Vliyaniye fenil-β-naftilamina i sery na okisleniye uglevodorodov)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol XXXII, Nr 2, pp 382-388 (USSR)

ABSTRACT: The effect of phenyl-β-naphthylamine and sulfur on the oxidation of low-molecular hydrocarbons has been investigated in order to understand the oxidation process of swelling vulcanized rubbers. For the experiments the hydrocarbons tetralin and decalin were used. Phenyl-β-naphthylamine shows only a slight effect on the oxidation of tetralin and appreciably retards the oxidation of decalin (Figures 2 and 3). During oxidation amine is consumed, in the case of decalin almost completely after 6 hours (Figure 6). After complete consumption an accumulation of peroxide compounds is observed. Phenyl-β-naphthylamine has no effect on the thermal decomposition of the hydroperoxides of tetralin and decalin. The introduction of sulfur together with phenyl-β-naphthylamine

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The Effect of Phenyl-β-Naphthylamine and Sulfur on the Oxidation of Hydrocarbons

increases the thermal decomposition of decalin peroxides. At 150°C the decomposition is complete. This increase is due to the interaction of sulfur with the radicals RO and OH which causes a chain process of decomposition.
There are 8 graphs, 1 diagram, 1 table, and 11 Soviet references.

SUBMITTED: September 13, 1957

Card 2/2

DEGTEVA, T.G., kand.khimicheskikh nauk; KUZ'MINSKIY, A.S., doktor khimicheskikh nauk

Aging of rubbers in oils. Trudy NIIRP no. 6:54-68 '60. (MIRA 13:12)

(Rubber--Storage)

DEGTEVA, T.G., kand.khimicheskikh nauk; LAZARENKO, Ya.F.; FEDOROVA, V.G., kand.khimicheskikh nauk; NOSOV, Yu.A., kand.tekhn.nauk; KUZ'MINSKIY, A.S., doktor khimicheskikh nauk

Aging of rubber seals in oils. Trudy NIIRP no. 6:69-83 '60. (MIRA 13:12)

(Rubber goods--Testing)

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S/190/61/003/005/001/014
B101/B218

AUTHOR: Degteva, T. G.

TITLE: Thermal decomposition of fluorine-containing elastomers of the types Kel-F and PFP/VF. I

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 5, 1961, 671-678

TEXT: Based on the fact that fluorine-containing polymers are used for the production of heat-resistant rubbers, the author conducted an investigation of the processes of thermal or thermally oxidative decomposition of Kel-F (copolymer from trifluoro-chloroethylene and vinylidene fluoride) and PFP/VF (copolymer from perfluoro-propylene and vinylidene fluoride). The present paper deals mainly with the decomposition of Kel-F at 200-300°C. The commercial elastomer was purified by dissolving it in acetone with successive precipitation in water. The yield of the purified polymer amounted to 60%. The kinetics of accumulation of liquid decomposition products was studied by the device shown in Fig. 1 (more detailed explanation given in the legend). The device evacuated to 10^{-2} mm Hg was left standing overnight, heated at 80°C for 5-6 hr, and then again evacuated to 10^{-6} mm Hg.

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Thermal decomposition ...

Finally, it was separated by melting from the Langmuir pump and heated to the experimental temperature. The receiver ampoules 10 were immersed into liquid nitrogen one after the other, after a certain time separated by fusion, weighed, opened, and their content was then dissolved in water. The F^- ion was determined by titration with thorium titrate, and the Cl^- ion by an ЛП-5 (LP-5) potentiometer. The solubility of Kel-F was determined by wrapping it into filter paper and percale, extracting it by means of acetone, and weighing the insoluble residue. The author also determined the swelling capacity in acetone, and the viscosity of solutions in acetone at 25°C. He obtained the following results: 1) HCl and FH are separated on heating, and not Cl_2 and F_2; 2) the unpurified polymer is less heat-resistant; 3) the Table and Fig. 3 show the kinetics of the liberation of hydrogen halides; 4) Kel-F heated to 250°C in vacuo showed a maximum swelling capacity of 2300% after 1 hr; after 8 hr the latter decreased to 1200%. These values remain the same also with prolonged heating. Thus, cross linking occurs; 5) when heated to 200° or 250°C, solubility decreases rapidly at the beginning of the heating process, but then remains constant in spite of further liberation of hydrogen halides. At this temperature, structural changes are

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unimportant. 6) At 300°C, a complicated dependence of the solubility on the duration of heating was observed after about 8 hr. Furthermore, the solubility depends on the mechanical pretreatment of the polymer, and on whether the volatile products have been collected (Fig. 6). The macromolecular chain is destroyed, and a viscous, black substance is formed. 7) The infrared spectrum of Kel-F heated at 300°C in vacuo, shows the bands 1721 and 3122 cm^{-1} which correspond to double bonds. 8) Based on the kinetic curve of the liberation of hydrogen halides, the activation energy of this process was determined graphically: E_{HCl} = 29 kcal/mole; E_{HF} = 34 kcal/mole. 9) Heating at 150°C for 10 min in air increased liberation of HF. Therefrom the author concludes that addition of small amounts of oxygen accelerates the liberation of hydrogen halides. There are 10 figures, 1 table, and 8 references; 6 Soviet-bloc and 2 non-Soviet-bloc. The reference to English-language publication reads as follows: E. J. Arlman, J. Polymer Sci., 12, 543, 1954.

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry)